

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (currently amended). A method of ~~encoding control information on routing control for an optical data signal to be transmitted through an optical network, comprising operating an optical source to generate a substantially coherent continuous-wave light beam, amplitude-modulating the light beam with a data stream to produce an optical data signal, and also modulating the data signal with control information, using a substantially constant amplitude modulation technique and reading the control information to determine the routing for the optical data signal.~~

2 (original). A method as claimed in claim 1, wherein the control information is added to the optical data signal by means of a polarisation modulation technique.

3 (original). A method as claimed in claim 1, wherein the control information is added to the optical data signal by means of a phase-shift-keying modulation technique.

4-6 (cancelled).

7 (currently amended). A method as claimed in claim 1, wherein following the modulation of the light beam with the data stream, the optical data signal is passed to a

constant amplitude modulator to which is supplied the control information to be applied to the optical data signal.

8 (previously presented). A method as claimed in claim 1, wherein the data stream is applied to the light by means of a Mach-Zehnder interferometer to which is supplied the data stream, so as to produce an amplitude-modulated optical data signal.

9 (cancelled).

10 (currently amended). An optical data signal network including a transmitter adapted to encode control information on an optical data signal to be transmitted through an optical network, which transmitter comprises an optical source arranged to generate a substantially coherent continuous-wave light beam, an amplitude-modulator which modulates said light beam with a data stream to produce an optical data signal, and a substantially constant amplitude modulator arranged also to modulate the data signal with control information, using a non-amplitude modulation technique and which optical data signal network further comprises a network element arranged to route the optical data signal in response to the control information.

11 (original). An optical data signal transmitter as claimed in claim 10, wherein the optical source comprises a laser source.

12 (original). A method of modifying control information carried by an optical data signal transmitted through an optical network, comprising the steps of encoding the control information on the optical signal in a non-amplitude varying format so as to be associated with a stream of data, transmitting the optical signal to a traffic processor, reading and decoding the control information and then deciding upon the routing of the stream of data depending upon the decoding information, and passing the optical data signal through a wavelength converter based on a semiconductor optical amplifier thereby simultaneously removing the control information.

13 (original). A method as claimed in claim 12, wherein further control information is encoded on the optical signal following wavelength conversion thereof, so as to be associated with the wavelength-converted data signal.

14 (original). A method as claimed in claim 13, wherein the further control information is encoded on the optical signal by a substantially constant amplitude modulation technique.

15 (original). A method as claimed in claim 14, wherein the further control information is added to the wavelength-converted optical data signal by means of a polarisation modulation technique.

16 (currently amended). A method as claimed in claim ~~12~~ 14, wherein the further control information is added to the wavelength-converted optical data signal by means of a phase-shift-keying modulation technique.

17-21 (cancelled).

22 (previously presented). An optical data signal receiver for reading a light beam modulated with control information using a substantially constant amplitude modulation and modulated with data using an amplitude modulation technique, the receiver comprising a control information reader and a router for routing the modulated data stream in response to the control information.

23 (previously presented). An optical data signal receiver as claimed in claim 22, further comprising means for removing the control information from the modulated light beam.

24 (canceled).

25 (new). A method as claimed in claim 1 wherein the data signal is modulated with the control information before being modulated with the data stream.

26 (new). An optical data network as claimed in claim 10, wherein the substantially constant amplitude modulator is arranged to modulate the optical data signal before the optical data signal is modulated with the data stream.